How Hungarian standards are achieved

A brief survey

by

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1) History of standardization and its administrative organs

The central organ of standardization in Hungary is the Hungarian Office for Standardization (MSZH)

Hungarian standardization has a long past. The first Hungarian standard proposal on unified size of building elements (bricks) was prepared in 1875.

The first Hungarian standards, marked MEE, worked out by the Hungarian Electrotechnical Commission were issued in 1910.

The Hungarian Institute for Standardization - legal predecessor of the Hungarian Office for Standardization - has been set up in 1933. The Hungarian Office for Standardization has been created in 1949.

The past of the Hungarian Office for Standardization goes back to a quarter of a century, but the last ten years were specially important for the development of standardization.

The Hungarian Office for Standardization is a state organ with 145 employees. For organizational structure see Appendix I.

The Office is directed by the President and the Deputy-President.

Within the seven Sections of the Standardizing Main Department standards are elaborated. Standardization of plastics belongs to the scope of the Chemical Section. The work of the Experts' Committee for Plastics, - dealt with later in this study - is directed by the Chief of this Section and by one of the chemical engineers of the Office.

A special Section deals with the problems of principles, methodology,

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legal affairs and foreign relations. Another separate Section deals with financial affairs, documentation and problems concerning publication.

The Packaging Institute is functioning under the control of the Hungarian Office for Standardization. This Institute engaged in up to date packaging systems, makes them out experimentally and performs their test. One of its main tasks is the use of plastics for packaging techniques.

Beside national standards the ministries issue industrial standards that have to be applied for the products, varieties of certain industries. Factories work out branch standards, their application being compulsory within the concerned factory or plant.

The denomination of national standards is : Hungarian National Standard of the People's Republic. Marking : MSZ. This marking MSZ has to figure on the standardized product.

Appendix II contains the division of national standards.

2) Functioning, items of standardization, principal tasks of the Hungarian Office for Standardization

The principal tasks and functions of the Hungarian Office for Standardization based on the theoretical work and practice of Hungarian standardization going back to several decades, are summed up as follows:

a) Quality specifications

One of the basic aims of the Hungarian economy is the permanent improvement of the quality of products. For this reason specification of the quality requirements and control of the quality is necessary. In Hungary as well as in other countries I believe, two interests have to be co-ordinated. Viz. the interests of the producing industry and those of the consumers' are different. The producer may intend to issue a certain range of product-types, the consumer, however, may require another more developed variety, a better quality that isn't exactly determined or specified in certain cases. Besides, the large number of the consumers' entails a great variety of the quality requirements too. The co-ordination and unification of the demands with the possibilities of the production is very important. National standards are the means of co-ordinating claims

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and by the establishment of a synthesis, containing real requirements they serve as a basis for planning and supply.

b) Diminution of the variety

The reduction of production costs depends on the diminution of types and different sizes. A more detailed explanation on this subject I think, is not necessary. This diminution, however, isn't automatic. Instead of the assortment that came into being either accidentally or from sheer habit, the specification of the variety needed for technical or economical reasons, is only possible if this work is well discussed, carefully directed and well co-ordinated. National standards contain the variety determined that way.

c) How to secure interchangeability and connections

Well developed technique and permanent production requires that machines, machine parts or tools either in connection with one another, replacing or making run one another should be co-ordinated as regards dimensions, output and other requirements. The harmony of above factors doesn't come into being automatically either. Technical planning is being done at different places at the same time. The assurance of interchangeability and connections demands precisely fixed tolerances and a greater discipline of the producing industry. National standards specifying principal dimensions and principal characteristics of products, machines, apparatuses and tools, further the standards dealing with limits and fits, tolerance systems and screw threads etc. are the means of connections and interchangeability. So is the standard containing the principal and adjacent dimensions of plastic stamp-dies.

A standard containing tolerances of stamped plastic-goods is being elaborated.

d) Unification

The unification of the repeated works is one of the possibilities of reducing the non-productive work. Specifications concerning unification of technical drawings, symbols and measuring units help to reach that aim.

Standards dealing with the unification of nomenclature, definitions belong here too. Standards containing terminology of plastics is being prepared on the basis of the works already done within TC/61.

The standardization concerning security specifications couldn't be ranged exactly to either of its principal functions. The characteristics of safety belong - without doubt - to the idea of quality. In several cases, though, these specifications concern procedures and handling instructions which do not belong to the scope of quality specifications. A considerable standardizing work is being done in Hungary on this field, especially concerning autoclaves, recipients, boilers, further electrical equipments, elevators, transport means, fire-protecting apparatuses etc.

Another task of the Hungarian Office for Standardization is to participate in the works of Hungarian legislation too. Number of rules refer directly to standardization. When these rules are elaborated the Hungarian Office for Standardization is consulted as an expert, its viewpoints are taken into consideration at first. Such rules are those which specify the different quality requirements too, e.g. safety codes for public health and other rules with respect to any other kind of protection.

3) Problems concerning quality specifications

It appears necessary to deal here in short with the principal functions of standardization, the problem in connection with quality. An extensive study is being done within the Hungarian Office for Standardization, concerning determination of the idea of quality, quality level, quality grade and principles concerning quality control. All these studies of theoretical character have been issued in separate publications.

I should like to lay a stress on the problems concerning quality grade. A general principle of the Hungarian standardization procedure indicates always the inferior limit of quality requirements, without fixing the upper limit. We have studied the possibilities for introducing the so -called "purpose quality". According to this, we have specified for number of products qualities most convenient for a certain given purpose, without indicating any class of quality. (i.e. polyvinil-chlorid cable filler, casein for plastics, battery sulphuric acid etc.)

Special consideration has been given to specifications concerning control of the quality, testing, sampling and reception. Our aim is

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to introduce tests in the standards, carried out on as many objective instruments as possible. We have worked out standards which deal with the most up to date principles concerning control of the quality by the mathematical-statistical method. About 2000 standards contain procedures of quality grading by the mathematical statistical method. The method of the Columbia University has been taken into consideration when specifications were elaborated. Such is the standard dealing with the testings necessary for the quality classification of mass-products.

How the quality class is marked on the products

Products manufactured in compliance with the quality class specified in the standards, have to be marked by a symbol indicating the grade of the quality.

If we intend to express only that the product is in compliance with the standard, the complete marking MSZ and the number of the standard, or the abbreviated symbol MSZ should be used.

In case of quality classes the standards specify a mark that refers to the quality. This should be carried out either by way of marking the product by Roman numerals, colors or combination of both. In case of foods e.g., I cl. quality is marked by red, II cl. by blue, III cl. by green color.

(Standard plastic goods are marked by the abbreviated symbol, MSZ)

4) The procedure of standardization

A basic principle of this process is to reach an agreement among the different interested parties on one hand, to co-ordinate all the interests on the other, further, specifications should comply with the requirements of economy and the level of technique.

Standardization in Hungary is planned. The Hungarian Office for Standardization draws a plan containing all the items to be standardized. This plan is based partly on the conception about technical development, embracing the whole plan of Hungarian economy, partly on the conception about development of new manufacturing plants, taking always into account the products of

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the industries, the claims of producers, research and designing institutes, learned associations etc.

On the basis of the plans the first drafts are worked out either by the experts or by institutions. Detailed instructions and directives are given by the Office. In our mind it would be more correct if the subjects were worked out by research institutes, universities, designing offices etc. Either of these institutes has obviously more possibilities and has a more comprehensive view over the subject to be standardized than an expert. The first draft-standard on plastics have been elaborated by the Research Institute for Plastics an Organic Chemistry or the Quality Control Institute of Trade. A report accompanies the first draft. This contains the principles on the basis of which the draft has been elaborated and also the performed experiments, round-robin tests, the results of test-piece production and the literature in connection. This report has to indicate the conditions of which depends the manufacturing of the product specified in the draft. (eventual change of the technological process, investments etc.)

The "first draft" is submitted to the Experts' Committee of the Hungarian Office for Standardization. In this Committe the delegates of all the interested parties are represented. The Secretarial work of the Experts' Committee is being done by the staff of the Office. A basic principle of the discussions is to reach an agreement with the interested parties. It couldn't be an aim to demand excessive requirements from the producer or to force on the consumer products that are not most convenient.

In the opinion of the Office it is most important to observe this principle. There is no voting during the discussions, since in most cases these problems cannot be settled with the vote of the majority but only by taking into account all technical and economical view-points.

In many cases a new range of experiments and test-pieces will have to be prepared in order to enable the Committee to bring the problem to an issue.

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Chairman of this Committee is the leader of the Chair of Plastics from the Technical University, members of the Experts' Committee are, as follows:

Secretary:	dipl.eng. of the Hungarian Office for Standardization,	
Members:	Research Institute for Plastics and Organic Chemistry,	2 persons
	Quality Control Institute of Trade,	1 "
	Ministry of Heavy Industry, Chemical Department,	1 "

Further members of above Committee are the representatives of two producing and two consumers' enterprises.

A meeting of the Experts shall take place every month. Members only of this Committee take part in these meetings, which are organized by the Hungarian Office for Standardization.

The first drafts on plastics are elaborated by the above mentioned institutions and are submitted to the Experts' Committee for discussion. All foreign documentation and standards are made use of when the first draft is drawn. On the bases of all this material methods are tested in practice. Different types of plastics are used for the tests. The test results and the text of the draft are multiplied and issued by the Hungarian Office for Standardization. The necessary time is assured for the members of the Committee enabling them to perform the necessary control tests and experiments before the meeting. After this the Experts' Committee holds meetings on which the text of the draft will be discussed point for point.

The co-operation of the Experts' Committee members is honoured by the Hungarian Office for Standardization. A separate amount is allocated to all those who had contributed to the preparation of the first draft and to the members of the Experts' Committee. The Hungarian Office for Standardization provides - through the state budget - for the covering of all expenses.

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When agreement has been reached with respect to the final text, this is submitted to the Special Committee of the Office for supervision. After approval the draft is made public so that not only those who have taken part in the discussions but other interested organs may make objections or suggestions to the draft. This is put on sale, its issue being announced in the Official periodical of the Office (Szabvanyugyi Kozlemény.ek) The necessary time limit is given to enable anybody to comment ont it. After the dead-line the Committee revises the initial text in the light of the results of the enquiry. If necessary, further Experts' Committee meetings are held and the final text of the draft standards will be drawn up in compliance with aforementioned principle. The final text is then submitted to the Technical College of the Office for approval. The date on which the standard specifications will become obligatory, is fixed at the same time. This date depending on the readiness of the producer and the consumer has to take into account the eventual change of the technological process. The approval and the obligatory date of application is also made public through the Official paper of the Office. The standards are sold in the shop of the publishing house.

5) Publication of standards

A publishing house entirely independent from the Office issues the standards. They are published either separately as pamphlets in A4 format or standards of specific fields are published collectively in the form of a book. Standards and drafts are advertised in the official bulletin of the Hungarian Office for Standardization. Moreover, these official communications, this periodical contains also reports on theoretical and practical questions connected with standardization and a report of the meetings held, further a list of foreign standards recently issued. Works on special subjects dealing with different theoretical problems are issued also by the Office. Appendix III. gives the list of specific groups and the titles of the publications in connection with standardization.

About a 3,5 - 4 millions of pages are sold yearly.

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6) **Application, efficiency and revision of standards**

As it appeared from above explanation on the methods used for drafting standards, the aim is to reach an agreement when standards are elaborated. This helps standard specifications to be applied in practice, after mutual understanding. Another condition of which the application of standards in practice depends, should be the fulfilment of the different instructions. All the interested parties will take notice of the specifications and it will be in their power to make the necessary arrangements for the production and the utilization in practice.

The application of standards in Hungary is obligatory. This means that the standardized product has to be manufactured and used in compliance with the specifications laid down in the standards and has to be applied in practice from the fixed time on. State rules warrant that rules will be kept. Other rules, instructions orders in connection with standardization contain also references to standards, such as the Hungarian food code, according to which Hungarian national standards should specify the quality, test methods and packaging of foods.

Requirements of different business agreements, contracts refer to standard speficifations too.

Obviously it may happen that certain enterprises cannot fulfil fulfil one or another requirement laid down in the standard specification. In this case a well motivated demand asking for certain facilities has to be submitted to the Hungarian Office for Standardization. After having heard all the arguments of the interested parties the Hungarian Office for Standardization grants facilities, so that certain enterprises or number of enterprises are authorized to depart from the original specification for a certain fixed period.

Standards in Hungary being important factors of the technical and economical life, their use in practice can be well stimulated by popularization and well organized propaganda. Publications, number of technical periodicals, books beside those of the Hungarian Office for Standardization, refer to standards. In

high school instruction and at the universities, especially at the faculty of mechanical engineering standardization is one of the subjects of the lectures. Schoolbooks often contain standar test methods and drawings.

In most of the factories separate bureaus and standards engineers are engaged in national standardization, take an active part in the elaboration of standards and support the instructions, controling at the same time their due application. Similar organs have benn set up in trade too, their principal business being the control of the adequate quality of the products. Different research institutes, scientific bodies, systematically collaborate in preparing standards, elaborating the necessary dispositions for the introduction of standards in the industry. The engineers of the Office permanently visit the factories, taking part in the work of inspection, delivering lectures on scientific gatherings.

The use of new materials, the development of techniques, of new processes, international recommendations, necessitate from time to time the revision of standards in force. The object of this revision is to see whether the specifications of the standards correspond to the meanwhile changed circumstances, i.e. to what extent the specifications will have to be amended. This revision process is initiated either by the Office itself, spontaneously or - on the basis of the remarks, objections and suggestions of any other organ. With some exceptions, this process is identic to that of the elaboration of standards.

7) Relation of the national and international standardization

Hungary is represented by the Hungarian Office for Standardization in the International Organization for Standardization (ISO) the International Electrotechnical Commission (IEC) and in the International Commission on Rules for the Approval of Electrical Equipment (CEE) Appendix IV. gives a list of the Committees in which Hungary takes an active part. The Secretariat of ISO/TC 34 -Agricultural Products - has been allocated to the Hungarian Office for Standardization, so as the Secretariat of IEC/TC 13 -Electrical Measuring Instruments- The technical meetings of

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these Committees are attended by the delegates of the Office, or the representatives of industrial life. The meeting of IEC/TC 13 was held in Hungary in 1955 that of ISO/TC 34 in 1958.

The work of ISO/TC 61 is carried on by the Experts' Committee for Plastics. The Experts' Committee gets all the documents, its members perform the necessary experiments and tests, collaborate in the development of our point of view. The delegate of the TC61 meetings is a member of the Experts' Committee.

8) Plastics industry and standardization of plastics

Plastics industry in Hungary being at an initial stage, has to be considerably developed. Before Worl-War II. a few principally processing industries worked from import materials. Development begun in the last decades. Our aim is to approach in a short time the plastics types of international level. Concerning raw material, we dispose of an appropriate basis, actually. Development of polyvinylchlorid and polyamid plastics, and polyetylene is pursued at first.

The Research Institute for Plastics has worked out the technological process of a number of plastics. Considerable work is going on withih the Chair of Rubber and Plastics, Technical University.

Standardization reflects the above described state. Beside the already performed standards, we are engaged in standardization of further items.

15 standards on test methods are actually in force. These deal partly with the mechanical and physical characteristics of plastics on one side, and with the electrical test methods of insulating materials on the other, moreover with the testing of PVC pipes too.

23 standards deal with different plastic products, partly concerning properties of insulating materials employed in the electric industry phenolic moulding powder, PVC for electric-industry and plastics for the dye-industry.

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12 further standards for the elaboration of test methods is being elaborated, chiefly concerning chemical, mechanical and thermal properties of plastics, 5 other draft standards concern quality specifications of certain plastics. Extensive experiments are being pursued in Hungary to elaborate standard test methods for tropical influences. The elaboration of the necessary processes is a means to approach the solution of the complex and very difficult problems of the tropics in connection with standardization.

All that has been done withih the ISO/TC 61 serves us in above work. The already elaboratad specifications are the bases of our national draft-standards and when tests are carried out. Activity withih ISO/TC 61 is eagerly followed by the Committee of Experts of our Office.

The principal aims, methods and principles of the Hungarian plastics-industry have been reviewed in this paper. I hope, I have drown a picture of the works going on within the Hungarian Office for Standardization, concerning standardization of plastics too.

Standardization is a means to solve technical problems as well as to reach mutual understanding.

In our mind this belongs to the tasks of the Hungarian Office for Standardization too.

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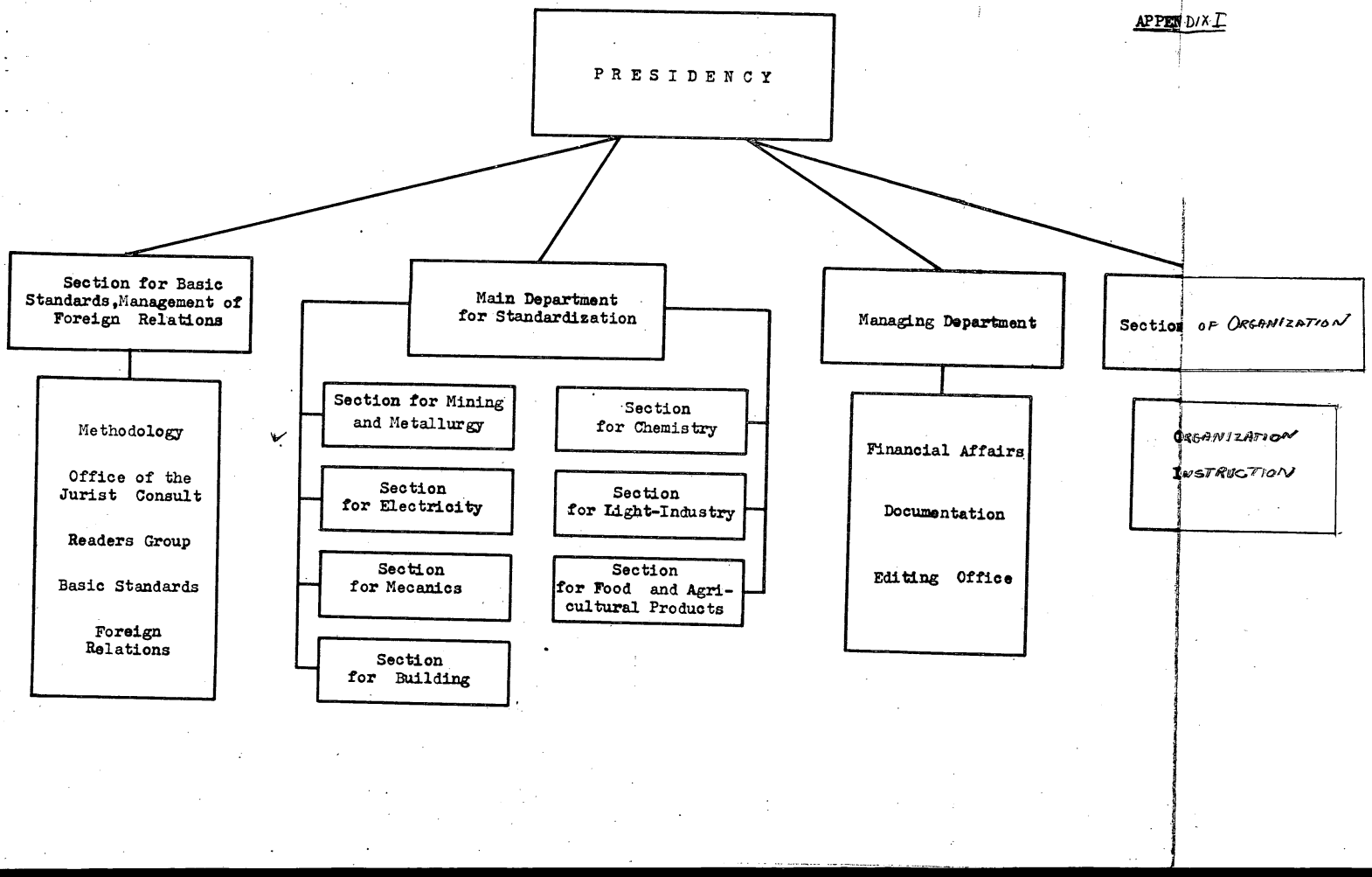
Budapest, October, 1958.

APPENDIX I



APPENDIX II

Division of Hungarian standards

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Mining and mining products	2,1
Mineral oils	1,3
Metallurgy	7,8
Engineering, precision-mechanics, machines machine parts, tools,	33,3
Transport and delivery, aircraft, shipbuilding, railroad and highway communication, packaging -and packing materials,	4,8
Thermodynamics and electricity	5,8
Building, building materials, glassware and ceramics-industry	12,3
Timber, wood-products, cellulose, paper	4,4
Chemical products, rubber and asbestos	5,8
Textile and leather-industry	3,5
Food and stimulants	5,1
Public health, medical instruments, cosmetics	5
Agriculture and forestry	3,4
Scientific ant technical terms, symbols, quantities	0,4
Domestic appliances, office and school equipment, sports requisites, organization technics	5,

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APPENDIX III

List of the ISO Technical Committees in which the Hungarian Office for Standardization takes an active part

ISO/TC 1	Screw threads
ISO/TC 2	Bolts, nuts and accessories
ISO/TC 3	Limits and fits
ISO/TC 4	Ball and roller bearings
ISO/TC 5	Pipes and fittings
ISO/TC 7	Rivets
ISO/TC 10	Drawings /general principles/
ISO/TC 11	Unification of boiler codes
ISO/TC 12	Quantities, units, symbols, conversion factors and conversion tables
ISO/TC 16	Keys and keyways
ISO/TC 19	Preferred numbers
ISO/TC 22	Automobiles
ISO/TC 23	Agricultural machines
ISO/TC 29	Small tools
ISO/TC 34	Agricultural products
ISO/TC 38	Textiles
ISO/TC 39	Machine tools
ISO/TC 43	Acoustics
ISO/TC 45	Rubber
ISO/TC 46	Documentation
ISO/TC 47	Chemistry
ISO/TC 52	Hermetically sealed metal food containers
ISO/TC 55	Resinous lumber 6 sizing and defects/
ISO/TC 57	Surface finish
ISO/TC 60	Gears
ISO/TC 61	Plastics
ISO/TC 64	Method of testing for performance and efficiency of fuel using equipment excluding internation engines
ISO/TC 65	Manganese ores
ISO/TC 69	Statistical treatment of series of observations
ISO/TC 78	Aromatic hydrocarbons
ISO/TC 85	Nuclear energy

APPENDIX III

List of the I.E.C. Technical Committees in which the Hungarian Office for Standardization takes an active part

No 1	Nomenclature
2	Rotating Machinery
4	Hydraulic Turbines
5	Steam Turbines
12	Radio-communication
13	Measuring Instruments
13B	Indicating Measuring Instruments
14	Powe Transformers
15	Insulating Materials
16	Terminal Markings and Other Identifications
17	Swithgear and Controlgear
22	Power Converting Equipment
24	Electric and Magnetic Magnitudes and Units
25	Letter Symbols and Signs
28	Insulation co-ordination
29	Electro-Acoustics
31	Electrical Apparatus for Explosive Gas Atmospheres
35	Primary Cells and Batteries
36	Insulators
37	Lightning Arresters
39	Electronic Tubes and Valves and Analogous Semi-conductor Devices
40	Components for Electronic Equipment

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Groups, respectively collections:

1) Fastening
2) Basic standards for mechanical engineering (drawing practice, threads, limits and fits)
3) Library and documentation standards
4) Electrical engineering standards vol. I-III
5) Ball and Roller Bearings
6) Standard test methods of food products
7) Cutting tools
8) Standards of the building industry I.part: Architectural drawing elements and symbols, II.part: Building materials
9) Non-ferrous metals (alloys and semi- products)
10) Light metals (alloys and semi-products)
11) Fire-protection standards I.vol.: Fire extinguishing appliances and equipments II.vol: Preventive fire-protectio
12) Herd-book for pigs, evaluation according to appearance
13) Quality specifications of food products
14) Highway engineering standards
15) Prefabricated reinforced concrete building elements
16) Testing materials of the iron and metal-industry
17) Steel (acceptance, quality, sizes)
18) Safety code of the electric-industry
19) Pipeline standards
20) Foundations I.part: Soil-mechanics. Foundations. II.part: Directives for designing. Hydrotechny. Highway engineering
21) Building and engineering structures. Dimensioning
22) Machine-tools
23) Engineering and utility services for buildings
24) Tool-steels
25) Chemical reagents
26) Products and by-products of forestry

Publications:

R.KERTES - V.ZIEGLER : Tasks and methods of standardization.1954
Directives for quality specifications, 2nd edition Bp.1953
dr.Z.SZELÉNYI: On the legal problems of standardization. Bp.1958

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